

National Grid Networked Geothermal Pilot, Lowell

A proposed utility-owned networked geothermal pilot in the Acre, an Environmental Justice neighborhood in north Lowell, Massachusetts. National Grid cancelled the project in December 2024 after drilling bids exceeded the projected budget.

<p>LOCATION</p> <p>Lowell, Middlesex County, Massachusetts</p>	<p>PROJECT TYPE</p> <p>Utility (National Grid)</p>	<p>CURRENT STATUS</p> <p>Cancelled, December 2024</p>
<p>LEAD ORGANIZATION</p> <p>National Grid</p>	<p>SYSTEM SCALE</p> <p>Proposed to serve 31 customers; borefield capacity not specified before cancellation</p>	<p>ESTIMATED COST</p> <p>\$15.6M projected (\$6.4M capital, \$9.2M O&M over five years)</p>
<p>POLICY ANCHOR</p> <p>MA DPU Order 20-80 (December 2023)</p>	<p>KEY OBSTACLE</p> <p>Drilling and construction bids exceeded the projected budget</p>	<p>NEXT STEP</p> <p>Apply lessons on scale, outreach, and labor capacity to future Massachusetts sites</p>

PROJECT DESCRIPTION

National Grid proposed to serve 31 customers in the Acre neighborhood of north Lowell.¹ The site combined older residential units, a Lowell Housing Authority property, and two buildings on the UMass Lowell campus.⁵ Of 14 candidate sites in Massachusetts, this one was the only site that met all four selection criteria. It sat in an Environmental Justice area, presented diverse load profiles across commercial, low-density residential, and high-density residential buildings, fell within a gas-constrained service territory, and offered an alternative to replacing leak-prone, aging gas pipes.²

KEY ACTORS AND GOVERNANCE

National Grid initiated the pilot in response to Massachusetts DPU Order 20-80, which bars cost recovery for gas infrastructure absent evidence that non-gas alternatives were considered.³ National Grid

TIMELINE

2020: National Grid floats the pilot in its annual rate filing

Feb 2021: National Grid petitions DPU (Docket 21-24)

Dec 2021: DPU approves the pilot

May 2022: National Grid files Implementation Plan

Sep 2022: DPU approves Implementation Plan

Nov 2022: Letter of Intent signed with UMass Lowell

Dec 2022: Lowell selected as first pilot site

worked with the RIST Institute at UMass Lowell, the UMass Lowell administration, and the City of Lowell.^{4,5} The utility also consulted the Home Energy Efficiency Team (HEET) on site selection, funding strategies, and data collection.⁴ National Grid cancelled the project after drilling and construction bids exceeded the projected budget.¹

FUNDING AND COSTS

National Grid funded the pilot to demonstrate the feasibility of utility-scale networked geothermal.² The allotted budget totaled \$15.6 million over five years, with \$6.4 million in capital costs and \$9.2 million for operations and maintenance.¹ When contractor bids for drilling and construction came back above the budgeted amount, National Grid cancelled the project.⁶

PERMITTING AND APPROVALS

National Grid filed its request for pilot approval with the DPU on February 18, 2021, before selecting a site. The petition was docketed as DPU 21-24.² National Grid filed its Geothermal Implementation Plan on May 16, 2022. The DPU approved that plan in September 2022.² The utility selected CDM Smith for site screening and feasibility studies in August 2022. National Grid signed a Letter of Intent with UMass Lowell on November 15, 2022.² The publicly available record on subsequent permits is sparse. The DPU 21-24 filing itself contains little beyond the date of filing.

COMMUNITY ENGAGEMENT AND EQUITY

The EDF Fellow at the RIST Institute developed an Environmental Justice plan to guide outreach. National Grid focused on Customer Agreements with property owners rather than renters, so that participation fees tied to building consent.⁴ The utility sent an initial round of postcards under the City Manager's signature, followed by a second wave including a project hotline and website link. A door-to-door canvass followed, with door-hangers left when occupants were unavailable. Representatives then called owner-occupied buildings to explain the program, and the utility distributed flyers in English, Spanish, Portuguese, and Khmer.⁴

The EDF Fellow also identified further work the project needed before construction. The plan called for stronger relationships with trusted community organizations and explicit attention to the distinct decision-making practices of the diverse communities in Lowell.⁴

WHY THIS CASE MATTERS

Lowell is the first cancelled networked geothermal pilot in Massachusetts and the first to test the utility-led pathway

Apr 2023: Borehole testing breaks ground

Dec 2024: National Grid cancels the project

Feb 2025: Cancellation reported publicly

POLICY ANCHOR

Massachusetts DPU Order 20-80 (December 6, 2023) prohibits cost recovery for gas infrastructure unless the utility documents consideration of non-gas alternatives. The order motivated National Grid to test networked geothermal as a non-gas decarbonization pathway.³

NEXT STEP

The Lowell pilot is unlikely to proceed in its original form. Sites elsewhere in Lowell and across Massachusetts with stronger economy-of-scale conditions may benefit from the planning, outreach, and scoping lessons developed here.

against bid economics. The cancellation surfaced two transferable lessons. Economy of scale shapes whether a project pencils out, and smaller multi-occupant sites can fail on financial grounds because of irregularities across individual building connections and a limited ratepayer base. A thin labor market for drilling and ground-source construction work constrains RFP competitiveness and inflates bids.⁷ Lowell is proof that meeting all the policy and equity criteria is not enough on its own if the bid environment cannot deliver a buildable price.

Sources

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